

Science incident – safety precautions in practical activities

During the conduct of a year 11 physics experiment about circular motion a large mass being swung in a circle came loose from the restraining cord and hit a student in the head. The object was similar to that shown in the attached photograph.

In order to prevent similar incidents from occurring in the future, teachers are reminded to perform comprehensive risk management procedures before running activities where significant hazards are identified, especially those involving high forces, pressures or energy levels.



Recommendations

The conduct of practical experiments is an integral part of the learning process and the following general recommendations for this type of experiment are made.

Wherever possible, use purpose designed circular/centripetal motion kits (e.g. from a science equipment supplier)

1. The maximum rotational mass to be used is no more than 100g.
2. The maximum radius of rotation is no more than 2m.
3. The mass is to be securely attached to the restraining cord and checked by the teacher before the activity begins. If the mass is to be altered during the experiment, the correct methods of changing it are to be followed. Ensure the masses cannot dislodge during use.
4. The restraining cord is to be checked for adequate reserves of strength and is free of abrasion or other damage. If a central pivot tube is used, the contact surface must be smooth to reduce wear on the restraining line. Do not use a glass tube for the central pivot.
5. Positioning of student groups is to be checked by the teacher before the experiment begins to ensure adequate separation distances are maintained.
6. The pre-experiment instructions to students should be clear, comprehensive and understood by them. Only sufficient items required to be used in the session should be issued. Any additional safety instructions in texts should be followed.
7. All persons involved must wear eye protection.

Teachers who are unsure of these processes should seek advice from the Head of Department or other experienced science staff.